CLAIMS

What is claimed is:

1. A method of determining a size of an annulus in a wellbore, comprising:

(a) displacing a fluid downhole and up through the annulus, wherein the fluid comprises reflective particles that make a front end of the fluid visible as it exits the wellbore; and

(b) determining a total volume of the fluid displaced into the wellbore by detecting the reflective particles exiting the wellbore; and

(c) calculating the size of the annulus based on the total volume of the fluid.

2. The method of claim 1, wherein the fluid comprises a drilling fluid, a spacer fluid, a cement slurry, or combinations thereof.

3. The method of claim 1, wherein the fluid passes through one or more conduits before reaching the annulus.

4. The method of claim 3, wherein step (c) comprises subtracting the volume of each conduit from the volume of fluid.

5. The method of claim 1, wherein the reflective particles comprise glitter, sequins, confetti, metallic flakes, glass spheres, micas, bismuth oxychloride, guanines, coated particulate substrates, polymeric flakes, polymeric spheres, polymeric film, or combinations thereof.

6. The method of claim 5, wherein the coated particulate substrates comprise reflective coatings selected from the group consisting of phosphorus coatings, metal coatings, metal oxide coatings, and combinations thereof.

7. The method of claim 1, wherein the reflective particles comprise beads.

8. The method of claim 1, wherein the reflective particles comprise polymeric beads.

9. The method of claim 1, wherein the reflective particles comprise styrene present in an amount of from about 0% to about 1% by weight of the total particle composition, isoparaffins present in an amount of from about 2% to about 13% by weight of the total particle composition, and a copolymer of divinylbenzene, ethylvinylbenzene, and vinylbenzene present in an amount of from about 60% to about 100% by weight of the total particle composition.

10. The method of claim 1, wherein the reflective particles have a sufficient diameter that they are visible and will not plug any downhole tools.

11. The method of claim 1, wherein the reflective particles have a diameter of about 1 mm.

12. The method of claim 1, wherein the reflective particles comprise FDP-C691-3 polymeric beads.

13. The method of claim 1, wherein the reflective particles are present in the fluid in an effective amount to ensure that the front end of the fluid is visible.

14. The method of claim 1, wherein the wellbore is located offshore and the reflective particles are viewed using a remote operated vehicle.

15. The method of claim 1, wherein the wellbore is located onshore.

16. The method of claim 1, further comprising using the size of the annulus to determine an amount of a cement slurry to displace into the wellbore.

17. The method of claim 1, wherein the reflective particles are used in combination with light having a wavelength effective to enhance the reflectivity of the particles, the ability to detect the reflected particles, or both.

18. The method of claim 1, wherein the reflective particles are used in combination with a type of light effective to enhance the reflectivity of the particles, the ability to detect the reflected particles, or both.

19. The method of claim 1, wherein reflective particles are of a type and present in sufficient quantity that they are readily detected visually on a black and white or color monitor video.

20. The method of claim 1, wherein the reflective particles are used in combination with an infrared, ultraviolet, or florescent light source.

21. The method of claim 20, further comprising means for detecting and/or characterizing light reflected from the reflective particles.

22. The method of claim 21, wherein the means for detecting and/or characterizing light comprises filters and wavelength characterization or analysis means.

23. The method of claim 1, wherein the fluid comprises from about 10 to about 75 pounds per barrel of reflective particles.

24. The method of claim 1, further comprising introducing the reflective particles to the fluid through a hopper and blending the particles and the fluid together prior to step (a).

25. The method of claim 1, further comprising agitating the fluid prior to step (a).

26. The method of claim 1, further comprising using a video camera to observe when the fluid exits the wellbore.

27. A method of servicing a wellbore, comprising:

(a) passing a drilling fluid into the wellbore; and

(b) subsequently displacing another type of fluid into the wellbore, the another type of fluid comprising an effective amount of reflective particles to ensure that a front end of the fluid is visible when it exits the wellbore.

28. The method of claim 27, wherein the another type of fluid comprises a spacer fluid, a cement slurry, or combinations thereof.

29. The method of claim 27, wherein the another type of fluid is displaced down through one or more conduits and up through an annulus.

30. The method of claim 29, further comprising determining a total volume of the another type of fluid displaced into the wellbore by detecting the reflective particles exiting the wellbore.

31. The method of claim 30, further comprising calculating a size of the annulus by subtracting the volume of each conduit from the total volume of the another type of fluid.

32. The method of claim 31, further comprising using the size of the annulus to determine an amount of cement slurry to displace into the wellbore.

33. The method of claim 27, wherein the reflective particles comprise glitter, sequins, confetti, metallic flakes, glass spheres, micas, bismuth oxychloride, guanines, coated particulate substrates, polymeric flakes, polymeric spheres, polymeric film, or combinations thereof.

34. The method of claim 33, wherein the coated particulate substrates comprise reflective coatings selected from the group consisting of phosphorus coatings, metal coatings, metal oxide coatings, and combinations thereof.

35. The method of claim 27, wherein the wellbore is located offshore and the fluid is observed exiting the wellbore using a remote operated vehicle.

36. The method of claim 27, wherein the wellbore is located onshore.

37. The method of claim 27, wherein the reflective particles are used in combination with light having a wavelength effective to enhance the reflectivity of the particles, the ability to detect the reflected particles, or both.

38. The method of claim 27, wherein the reflective particles are used in combination with a type of light effective to enhance the reflectivity of the particles, the ability to detect the reflected particles, or both.

39. The method of claim 27, wherein the reflective particles comprise beads.

40. The method of claim 27, wherein the reflective particles comprise polymeric beads.

41. The method of claim 27, wherein the reflective particles comprise FDP-C691-03 polymeric beads.

42. The method of claim 27, wherein the reflective particles comprise styrene present in an amount of from about 0% to about 1% by weight of the total particle composition, isoparaffins present in an amount of from about 2% to about 13% by weight of the total particle composition, and a copolymer of divinylbenzene, ethylvinylbenzene, and vinylbenzene present in an amount of from about 60% to about 100% by weight of the total particle composition.

43. The method of claim 27, wherein the reflective particles have a sufficient diameter that they are visible and will not plug any downhole tools.

44. The method of claim 27, wherein the reflective particles have a diameter of about 1 mm.

45. The method of claim 27, wherein the reflective particles are present in the fluid in an effective amount to ensure that the front end of the fluid is visible.

46. The method of claim 27, wherein reflective particles are of a type and present in sufficient quantity that they are readily detected visually on a black and white or color monitor video.

47. The method of claim 27, wherein the reflective particles are used in combination with an infrared, ultraviolet, or florescent light source.

48. The method of claim 47, further comprising means for detecting and/or characterizing light reflected from the reflective particles.

49. The method of claim 48, wherein the means for detecting and/or characterizing light comprises filters and wavelength characterization or analysis means.

50. The method of claim 27, wherein the fluid comprises from about 10 to about 75 pounds per barrel of reflective particles.

51. The method of claim 27, further comprising using a video camera to observe when the fluid exits the wellbore.

52. The method of claim 27, further comprising introducing the reflective particles to the another type of fluid through a hopper and blending them together prior to step (b).

53. The method of claim 27, further comprising agitating the another type of fluid prior to step (b).

54. A wellbore fluid comprising an effective amount of reflective particles to ensure detection upon exiting a wellbore.

55. The fluid of claim 54 wherein the fluid comprises a drilling fluid, a spacer fluid, a cement slurry, or combinations thereof.

56. The fluid of claim 54, wherein the reflective particles comprise beads.

57. The fluid of claim 54, wherein the reflective particles comprise polymeric beads.

58. The fluid of claim 54, wherein the reflective particles comprise FDP-C691-03 beads.

59. The fluid of claim 54, wherein the reflective particles comprise styrene present in an amount of from about 0% to about 1% by weight of the total particle composition, isoparaffins present in an amount of from about 2% to about 13% by weight of the total particle composition, and a copolymer of divinylbenzene, ethylvinylbenzene, and vinylbenzene present in an amount of from about 60% to about 100% by weight of the total particle composition.

60. The fluid of claim 54, wherein the reflective particles have a sufficient diameter that they are visible and will not plug any downhole tools.

61. The fluid of claim 54, wherein the reflective particles have a diameter of about 1 mm.

62. The fluid of claim 54, wherein the reflective particles comprise glitter, sequins, confetti, metallic flakes, glass spheres, micas, bismuth oxychloride, guanines, coated particulate substrates, polymeric flakes, polymeric spheres, polymeric film, or combinations thereof.

63. The fluid of claim 62, wherein the coated particulate substrates comprise reflective coatings selected from the group consisting of phosphorus coatings, metal coatings, metal oxide coatings, and combinations thereof.

64. The fluid of claim 54, wherein the fluid comprises from about 10 to about 75 pounds per barrel of reflective particles.

65. The fluid of claim 54, wherein the reflective particles are present in the fluid in an effective amount to ensure that the front end of the fluid is visible.

66. The fluid of claim 54, wherein the wellbore is located offshore and the reflective particles are viewed using a remote operated vehicle.

67. The fluid of claim 54, wherein the wellbore is located onshore.

68. The fluid of claim 54, wherein the reflective particles are used in combination with light having a wavelength effective to enhance the reflectivity of the particles, the ability to detect the reflected particles, or both.

69. The fluid of claim 54, wherein the reflective particles are used in combination with a type of light effective to enhance the reflectivity of the particles, the ability to detect the reflected particles, or both.

70. The fluid of claim 54, wherein reflective particles are of a type and present in sufficient quantity that they are readily detected visually on a black and white or color monitor video.

71. The fluid of claim 54, wherein the reflective particles are observed using a video camera when the fluid exits the wellbore.

72. The fluid of claim 54, wherein the reflective particles are used in combination with an infrared, ultraviolet, or florescent light source.

73. A method of using a fluid in a wellbore, comprising:

(a) displacing a fluid comprising reflective particles in the wellbore; and

(b) detecting the reflective particles.

74. The method of claim 73, wherein the fluid comprises a drilling fluid, a spacer fluid, a cement slurry, or combinations thereof.

75. The method of claim 73, wherein the fluid passes through one or more conduits before reaching an annulus in the wellbore.

76. The method of claim 73, wherein the reflective particles comprise glitter, sequins, confetti, metallic flakes, glass spheres, micas, bismuth oxychloride, guanines, coated particulate substrates, polymeric flakes, polymeric spheres, polymeric film, or combinations thereof.

77. The method of claim 76, wherein the coated particulate substrates comprise reflective coatings selected from the group consisting of phosphorus coatings, metal coatings, metal oxide coatings, and combinations thereof.

78. The method of claim 73, wherein the reflective particles comprise beads.

79. The method of claim 73, wherein the reflective particles comprise polymeric beads.

80. The method of claim 73, wherein the reflective particles comprise styrene present in an amount of from about 0% to about 1% by weight of the total particle composition, isoparaffins present in an amount of from about 2% to about 13% by weight of the total particle composition, and a copolymer of divinylbenzene, ethylvinylbenzene, and vinylbenzene present in an amount of from about 60% to about 100% by weight of the total particle composition.

81. The method of claim 73, wherein the reflective particles have a sufficient diameter that they are visible and will not plug any downhole tools.

82. The method of claim 73, wherein the reflective particles have a diameter of about 1 mm.

83. The method of claim 73, wherein the reflective particles comprise FDP-C691-3 polymeric beads.

84. The method of claim 73, wherein the reflective particles are present in the fluid in an effective amount to ensure that the front end of the fluid is visible.

85. The method of claim 73, wherein the wellbore is located offshore and the reflective particles are viewed using a remote operated vehicle.

86. The method of claim 73, wherein the wellbore is located onshore.

87. The method of claim 73, further comprising using the size of the annulus to determine an amount of a cement slurry to displace into the wellbore.

88. The method of claim 73, wherein the reflective particles are used in combination with light having a wavelength effective to enhance the reflectivity of the particles, the ability to detect the reflected particles, or both.

89. The method of claim 73, wherein the reflective particles are used in combination with a type of light effective to enhance the reflectivity of the particles, the ability to detect the reflected particles, or both.

90. The method of claim 73, wherein reflective particles are of a type and present in sufficient quantity that they are readily detected visually on a black and white or color monitor video.

91. The method of claim 73, wherein the reflective particles are used in combination with an infrared, ultraviolet, or florescent light source.

92. The method of claim 91, further comprising means for detecting and/or characterizing light reflected from the reflective particles.

93. The method of claim 92, wherein the means for detecting and/or characterizing light comprises filters and wavelength characterization or analysis means.

94. The method of claim 73, wherein the fluid comprises from about 10 to about 75 pounds per barrel of reflective particles.

95. The method of claim 73, further comprising introducing the reflective particles to the fluid through a hopper and blending the particles and the fluid together prior to step (a).

96. The method of claim 73, further comprising agitating the fluid prior to step (a).

97. The method of claim 73, further comprising using a video camera to observe when the fluid exits the wellbore.